

## CLAIMS

I claim:

1        1. A device adapted for displaying time in the form of a  
2        selectable display pattern, comprising:

3        a storage device adapted for storing a plurality of  
4        selectable display patterns;

5        an interface adapted for accepting at least one input from  
6        an operator and in response to the input said interface selects  
7        one of said selectable display patterns;

8        a plurality of display elements comprising a plurality of  
9        hour display elements and a plurality of minute display elements  
10       located proximate to a display area; and

11       a display elements controller in communication with a time  
12       mechanism, said storage device, and said interface;

13       wherein each of said hour display elements has at least an  
14       exhibiting state and a non-exhibiting state and is for  
15       indication of 1 elapsed hour;

16       wherein an amount of display elements of said hour display  
17       elements being in said exhibiting state of said hour display  
18       elements indicates an elapsed number of hours in a day;

19 wherein each of said minute display elements has at least  
20 an exhibiting state and a non-exhibiting state and is for  
21 indication of at least 1 elapsed minute, and wherein an amount  
22 of display elements of said minute display elements being in  
23 said exhibiting state of said minute display elements indicates  
24 an elapsed number of minutes in an hour;

25 wherein said controller is in operable communication with  
26 said hour display elements and said minute display elements  
27 wherein said controller is adapted for switching each of said  
28 hour display elements and said minute display elements at least  
29 between said exhibiting state and said non-exhibiting state of  
30 said hour display elements and said minute display elements,  
31 respectively;

32 wherein said controller is adapted for receiving time  
33 signals from the time mechanism and in response to the time  
34 signals said controller outputs display control signals to said  
35 hour display elements and said minute display elements whereby  
36 an hours group pattern and a minutes group pattern,  
37 respectively, of said one of said selectable display patterns  
38 are exhibited proximate to the display area, and

39 wherein each of said hours group pattern and said minutes  
40 group pattern is of discrete and discernable contrast relative

41 to the display area and is visually distinguishable from one  
42 another.

1        2. The device according to claim 1, wherein each of said  
2 hours group pattern and said minutes group pattern comprises a  
3 plurality of subgroup patterns wherein each of said subgroup  
4 patterns is able to be initiated by any display element within  
5 that subgroup pattern, wherein a chronological sequence of  
6 exhibition proximate to the display area among said subgroup  
7 patterns of said hours group pattern is able to be initiated by  
8 any display element within any one of said subgroup patterns of  
9 said hours group pattern, and wherein a chronological sequence of  
10 exhibition proximate to the display area among said subgroup  
11 patterns of said minutes group pattern is able to be initiated by  
12 any display element within any one of said subgroup patterns of  
13 said minutes group pattern.

1        3. The device according to claim 2, wherein each subgroup  
2 pattern of each of said hours group pattern and said minutes  
3 group pattern is exhibited by a group of display elements  
4 consisting of 2 display elements, 3 display elements, 4 display  
5 elements, 5 display elements and 6 display elements.

1           4.    The device according to claim 1, wherein said hours  
2 group pattern and said minutes group pattern combine to form a  
3 single display pattern.

1           5.    The device according to claim 1, wherein each of said  
2 hours group pattern and said minutes group pattern is selected  
3 from a group of group patterns consisting of a first group  
4 pattern of dots, a second group pattern of dots, a first group  
5 pattern of lines, a second group pattern of lines, a first group  
6 pattern of shapes and a second group pattern of shapes.

1           6. The device according to claim 1, wherein:  
2           said hour display elements is selected from a group of hour  
3 display elements consisting of 12 primary hour display elements  
4 and 24 primary hour display elements wherein each primary hour  
5 display element is for indication of 1 elapsed hour, and  
6           said minute display elements is selected from a group of  
7 minute display elements consisting of 60 primary minute display  
8 elements wherein each primary minute display element is for  
9 indication of 1 elapsed minute, 12 primary minute display  
10 elements wherein each primary minute display element is for  
11 indication of 5 elapsed minutes, and 12 primary minute display  
12 elements and 4 secondary minute display elements wherein each  
13 primary minute display element is for indication of 5 elapsed  
14 minutes and each secondary minute display element is for  
15 indication of 1 elapsed minute of a 4-minute period between each  
16 5-minute interval.

1           7. The device according to claim 1, wherein said storage  
2 device, said interface, said plurality of display elements and  
3 said controller are manufactured as a single operating device.

1        8. The device according to claim 1, wherein said plurality  
2 of display elements further comprises a plurality of second  
3 display elements located proximate to the display area, wherein  
4 each of said second display elements has at least an exhibiting  
5 state and a non-exhibiting state and is for indication of at  
6 least 1 elapsed second, wherein an amount of display elements of  
7 said second display elements being in said exhibiting state of  
8 said second display elements indicates an elapsed number of  
9 seconds in a minute, whereby said controller is in operable  
10 communication with said second display elements whereby a  
11 seconds group pattern of said one of said selectable display  
12 patterns is exhibited proximate to the display area as a result  
13 of the output display control signals from said controller in  
14 response to the time signals, and wherein said seconds group  
15 pattern is of discrete and discernable contrast relative to the  
16 display area and is visually distinguishable from said hours  
17 group pattern and said minutes group pattern.

1           9. The device according to claim 8, wherein:

2           said hour display elements is selected from a group of hour  
3 display elements consisting of 12 primary hour display elements  
4 and 24 primary hour display elements wherein each primary hour  
5 display element is for indication of 1 elapsed hour,

6           said minute display elements is selected from a group of  
7 minute display elements consisting of 60 primary minute display  
8 elements wherein each primary minute display element is for  
9 indication of 1 elapsed minute, 12 primary minute display  
10 elements wherein each primary minute display element is for  
11 indication of 5 elapsed minutes, and 12 primary minute display  
12 elements and 4 secondary minute display elements wherein each  
13 primary minute display element is for indication of 5 elapsed  
14 minutes and each secondary minute display element is for  
15 indication of 1 elapsed minute of a 4-minute period between each  
16 5-minute interval, and

17           said second display elements is selected from a group of  
18 second display elements consisting of 60 primary second display  
19 elements wherein each primary second display element is for  
20 indication of 1 elapsed second, 12 primary second display  
21 elements wherein each primary second display element is for  
indication of 5 elapsed seconds, and 12 primary second display

23 elements and 4 secondary second display elements wherein each  
24 primary second display element is for indication of 5 elapsed  
25 seconds and each secondary second display element is for  
26 indication of 1 elapsed second of a 4-second period between each  
27 5-second interval.

1        10.     The device according to claim 1, wherein said  
2 plurality of display elements further comprises a plurality of  
3 day display elements located proximate to the display area,  
4 wherein each of said day display elements has at least an  
5 exhibiting state and a non-exhibiting state and is for  
6 indication of 1 elapsed day in a week, wherein an amount of  
7 display elements of said day display elements being in said  
8 exhibiting state of said day display elements indicates an  
9 elapsed number of days in a week, whereby said controller is in  
10 operable communication with said day display elements whereby a  
11 days group pattern of said one of said selectable display  
12 patterns is exhibited proximate to the display area as a result  
13 of the output display control signals from said controller in  
14 response to the time signals, and wherein said days group  
15 pattern is of discrete and discernable contrast relative to the  
16 display area and is visually distinguishable from said hours  
group pattern and said minutes group pattern.

1           11.     The device according to claim 1, wherein said  
2 plurality of display elements further comprises a plurality of  
3 date display elements located proximate to the display area,  
4 wherein each of said date display elements has at least an  
5 exhibiting state and a non-exhibiting state and is for  
6 indication of at least 1 elapsed day in a month, wherein an  
7 amount of display elements of said date display elements being  
8 in said exhibiting state of said date display elements indicates  
9 an elapsed number of days in a month, whereby said controller is  
10 in operable communication with said date display elements  
11 whereby a date group pattern of said one of said selectable  
12 display patterns is exhibited proximate to the display area as a  
13 result of the output display control signals from said  
14 controller in response to the time signals, and wherein said  
15 date group pattern is of discrete and discernable contrast  
16 relative to the display area and is visually distinguishable  
17 from said hours group pattern and said minutes group pattern.

1           12.     The device according to claim 11, wherein said  
2 plurality of display elements further comprises a plurality of  
3 month display elements located proximate to the display area,  
4 wherein each of said month display elements has at least an  
5 exhibiting state and a non-exhibiting state and is for  
6 indication of at least 1 elapsed month, wherein an amount of  
7 display elements of said month display elements being in said  
8 exhibiting state of said month display elements indicates an  
9 elapsed number of months in a year, whereby said controller is  
10 in operable communication with said month display elements  
11 whereby a month group pattern of said one of said selectable  
12 display patterns is exhibited proximate to the display area as a  
13 result of the output display control signals from said  
14 controller in response to the time signals, and wherein said  
15 month group pattern is of discrete and discernable contrast  
16 relative to the display area and is visually distinguishable  
17 from said hours group pattern, said minutes group pattern, and  
18 said date group pattern.

1        13.     The device according to claim 12, wherein said  
2 interface further comprises a pattern toggle member being able  
3 to be placed in either of a first position and a second  
4 position, whereby a first display comprising at least one of  
5 said hours group pattern, said minutes group pattern, said date  
6 group pattern and said months group pattern is displayed when  
7 said pattern toggle member is in said first position, whereby a  
8 second display comprising at least one of said hours group  
9 pattern, said minutes group pattern, said date group pattern and  
10 said months group pattern is displayed when said pattern toggle  
11 member is in said second position, and wherein said first  
12 display and said second display are visually distinguishable  
13 from one another.

1        14.     The device according to claim 12, wherein said  
2 interface further comprises a time display toggle member being  
3 able to be placed in either of a first position and a second  
4 position, whereby a first display comprising said hours group  
5 pattern and said minutes group pattern is displayed when said  
6 time display toggle member is in said first position, and  
7 whereby a second display comprising a numerical time pattern is  
8 displayed when said time display toggle member is in said second  
9 position.

1        15.     The device according to claim 12, wherein said  
2 interface further comprises a time display toggle member  
3 switching said display elements between a first display state  
4 consisting of said hours group and said minutes group for  
5 displaying time only, a second display state consisting of said  
6 month group and said date group for displaying a date only, and  
7 a third display state comprising said month group, said date  
8 group, said hours group and said minutes group for displaying  
9 both the time and date.

1        16. The device according to claim 1, further comprising a  
2 projection machine connected to said storage device and said  
3 interface for projecting an image of said display elements on a  
4 display area.

1        17. A device adapted for displaying time in the form of a  
2 selectable display pattern, comprising:

3        a storage device adapted for storing a plurality of  
4 selectable display patterns;

5        an interface adapted for accepting at least one input from  
6 an operator and in response to the input said interface selects  
7 one of said selectable display patterns;

8        a housing comprising a display area, wherein said display  
9 area is adapted for displaying said one of said selectable  
10 display patterns;

11       a plurality of display elements comprising a plurality of  
12 hour display elements and a plurality of minute display elements  
13 located proximate to said display area;

14       a display elements controller in communication with a time  
15 mechanism, said storage device, and said interface;

16       wherein each of said hour display elements has at least an  
17 exhibiting state and a non-exhibiting state and is for  
18 indication of 1 elapsed hour, and wherein an amount of display  
19 elements of said hour display elements being in said exhibiting  
20 state of said hour display elements indicates an elapsed number  
21 of hours in a day;

22 wherein each of said minute display elements has at least  
23 an exhibiting state and a non-exhibiting state and is for  
24 indication of at least 1 elapsed minute, and wherein an amount  
25 of display elements of said minute display elements being in  
26 said exhibiting state of said minute display elements indicates  
27 an elapsed number of minutes in an hour;

28 wherein said controller is in operable communication with  
29 said hour display elements and said minute display elements  
30 wherein said controller is adapted for switching each of said  
31 hour display elements and said minute display elements at least  
32 between said exhibiting state and said non-exhibiting state of  
33 said hour display elements and said minute display elements,  
34 respectively;

35 wherein said controller is adapted for receiving time  
36 signals from the time mechanism and in response to the time  
37 signals said controller outputs display control signals to said  
38 hour display elements and said minute display elements whereby  
39 an hours group pattern and a minutes group pattern,  
40 respectively, of said one of said selectable display patterns  
41 are exhibited proximate to said display area; and

42 wherein each of said hours group pattern and said minutes  
43 group pattern is of discrete and discernable contrast relative

44 to said display area and is visually distinguishable from one  
45 another.

1 18. The device according to claim 17, wherein each of said  
2 hours group pattern and said minutes group pattern comprises a  
3 plurality of subgroup patterns wherein each of said subgroup  
4 patterns is able to be initiated by any display element within  
5 that subgroup pattern, wherein a chronological sequence of  
6 exhibition proximate to said display area among said subgroup  
7 patterns of said hours group pattern is able to be initiated by  
8 any display element within any one of said subgroup patterns of  
9 said hours group pattern, and wherein a chronological sequence of  
10 exhibition proximate to said display area among said subgroup  
11 patterns of said minutes group pattern is able to be initiated by  
12 any display element within any one of said subgroup patterns of  
13 said minutes group pattern.

1 19. The device according to claim 18, wherein each  
2 subgroup pattern of each of said hours group pattern and said  
3 minutes group pattern is exhibited by a group of display  
4 elements consisting of 2 display elements, 3 display elements, 4  
5 display elements, 5 display elements and 6 display elements.

1        20. The device according to claim 17, wherein said hours  
2 group pattern and said minutes group pattern combine to form a  
3 single display pattern.

1        21. The device according to claim 17, wherein each of said  
2 hours group pattern and said minutes group pattern is selected  
3 from a group of group patterns consisting of a first group  
4 pattern of dots, a second group pattern of dots, a first group  
5 pattern of lines, a second group pattern of lines, a first group  
6 pattern of shapes and a second group pattern of shapes.

1        22. The device according to claim 17, wherein:  
2        said hour display elements is selected from a group of hour  
3 display elements consisting of 12 primary hour display elements  
4 and 24 primary hour display elements wherein each primary hour  
5 display element is for indication of 1 elapsed hour; and  
6        wherein said minute display elements is selected from a  
7 group of minute display elements consisting of 60 primary minute  
8 display elements wherein each primary minute display element is  
9 for indication of 1 elapsed minute, 12 primary minute display  
10 elements wherein each primary minute display element is for  
11 indication of 5 elapsed minutes, and 12 primary minute display  
12 elements and 4 secondary minute display elements wherein each  
13 primary minute display element is for indication of 5 elapsed  
14 minutes and each secondary minute display element is for  
15 indication of 1 elapsed minute of a 4-minute period between each  
16 5-minute interval.